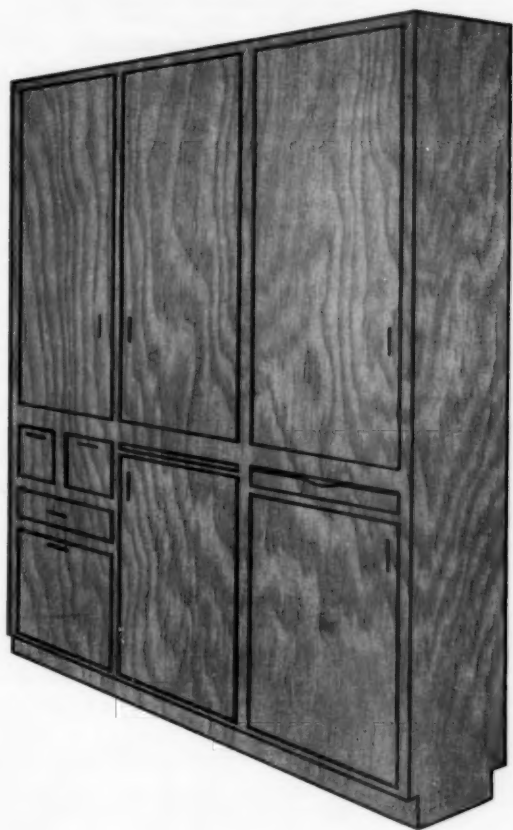


A Kitchen-Dining Area STORAGE WALL

MARY KOLL HEINER
and ROSE E. STEIDL



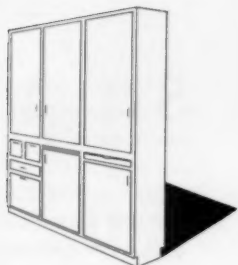
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A Kitchen-Dining Area STORAGE WALL¹

MARY KOLL HEINER and ROSE E. STEIDL²



COULD you use more storage space in your home? This bulletin suggests a storage wall as one way to increase your storage space. A storage unit used in place of an interior wall provides both a partition between two rooms or areas and added storage space. A storage wall can be added in a large room, or in some cases it can replace an existing wall.

Only certain walls can be replaced by a storage unit. Non-load-bearing walls—those that are not needed to support the weight of the ceiling and the floor above or to conceal pipes—may be used for storage space. Walls that are part of the main structure of the house cannot be used for a storage wall. An architect or builder can tell you which walls are non-load-bearing.

A storage wall can be useful between any two rooms. You may want to get at the storage space from either one room or both. If the storage is to be easily used, it needs to be designed for the items that will be stored.

This bulletin describes a storage wall that was designed to replace a non-load-bearing wall and to act as a partition between a kitchen and a dining area. We call the design “functional,” because it takes into consideration both the use and the user. The design fits the supplies that are stored in it and the ways in which they are used. The homemaker can use the storage facilities without doing unnecessary work.

This storage wall provides one, but not the only, functional method of storing both the much-used kitchen supplies, china and table items, and an occasionally-used set of better china and glassware. The number and kind of articles stored in this wall are those that might be owned by an average urban family of four with a medium income. Any family, however, can use the ideas for a storage wall but will need to check the amount of space their own supplies and table items would require.

This type of design for a kitchen-dining area storage wall may be of special interest to the homemaker who likes to store together all of her canned, packaged, and bottled food provisions for the week's needs.

¹A technical report of the method and results of testing is available for loan upon request. This storage wall was developed as an outgrowth of work reported in Cornell Univ. Agr. Exp. Sta. Bul. 846 and Cornell Ext. Bul. 703.

²Mrs. Heiner is an associate professor and Miss Steidl is a research associate in the Department of Economics of the Household and Household Management, New York State College of Home Economics.

General Description

STORAGE principles established in earlier research have been used in the design of this wall. If you use these principles, you will be able to see, to reach, and to grasp items without reaching behind or lifting off those you do not want. Your storage will work for you.

Shelves, just shallow enough to fit the packages or cans, keep your supplies one row deep. Shelves on four of the doors on the kitchen side of this storage wall, as well as the inside shelves, are shallow.

Shelves are movable so you can adjust them to fit the supplies you have and save storage space. The shelves rest on metal clips that fasten into holes in metal stripping so you can easily move the shelves up and down.

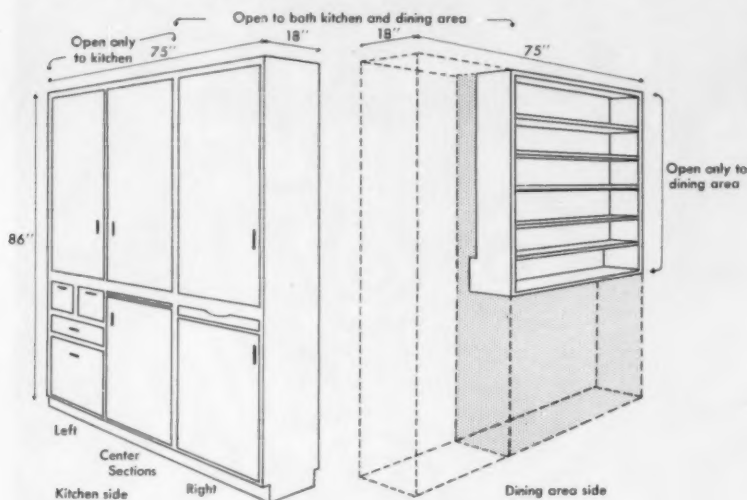
Drawer dividers and pan files enable you to lift out just what you need without sorting.

Neither exact inside nor outside measurements are given for the construction of a storage wall. If you want your storage wall to be functional, you need to plan it to fit your items and the ways you will use them. You may duplicate some of the ideas, but you will need to adapt and change features until they fit your particular situation. Kitchen and dining items differ from family to family and from one locality to another.

The approximate over-all dimensions of the storage wall shown in this bulletin are: height, 7 feet 2 inches; length, 6 feet 3 inches; and depth, 1 foot,

Figure 1. The kitchen-dining area storage wall. The kitchen side of the wall is shown on the left; the dining-area side is on the right.





6 inches (figure 1). The wall was not made higher, because we wanted to keep the top shelves within reach of a woman of average height (5 feet 3 inches to 5 feet 5 inches). The space from the top of this wall to the ceiling could be furred (blocked) in if a complete partition were desired. On the other hand, storage cupboards could be planned to extend to the ceiling if you want that space to store items used infrequently. It is better to keep frequently-used articles low enough to reach without climbing.

Part of the storage space in the wall can be reached only from the kitchen side, for that is where many items are first used. Another part of the storage space is available from both the kitchen and dining sides, since the items stored there can be used in either area. A third part of the wall provides storage that is accessible only from the dining area (figure 1).

You will need to provide counter space to use with the storage wall. A cart or table could be moved up to the storage wall, or your kitchen may include a stationary counter nearby.

The Kitchen Storage

Both the left and center sections on the kitchen side of the storage wall are used to store items that are used first or only in the kitchen (figure 2). These two sections are used together.

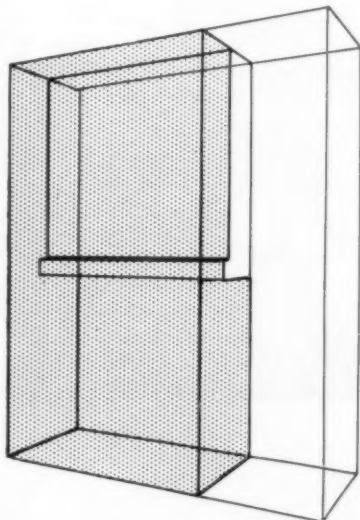
The swing of the doors in these two sections lets you see and reach any of the supplies without looking or reaching around a door. The swing also keeps you from bumping into the open two-foot door on either section as you work.



Figure 2. The kitchen storage. The left and center sections of the storage wall open only on the kitchen side. Storage in the lower part of these two sections requires the entire 18-inch depth of the wall, while the upper part allows space for storage on the dining-area side. Curtain springs are fastened across supplies on the door shelves to hold them in place. Springs allow packages to extend a bit beyond the shelf edge.

There are enough narrow, adjustable shelves on the doors or within the cabinet itself to hold an estimated week's supply of canned, packaged, and bottled foods for the urban family described. There is also enough space for mixing and baking utensils. Space has not been planned for the utensils used at the sink or at the range.

In the center section are stored supplies such as the canned soups, vegetables, and fruits used first at the sink, range, or serve area. Ready-to-cook and ready-to-eat cereals and canned juices are here, too. Some ready-to-eat cereals, cookies, and



crackers are stored on the lower door where young helpers can reach them.

Supplies and some utensils needed for mixing and baking can be placed in the left section. Each of the two top drawers will hold about 20 pounds of flour or of sugar. The mixing bowls are on shelves in the center section of the wall. These bowls are stored separately to permit you to grasp just the one you need. The utensil drawer has dividers to separate the utensils (figure 3).

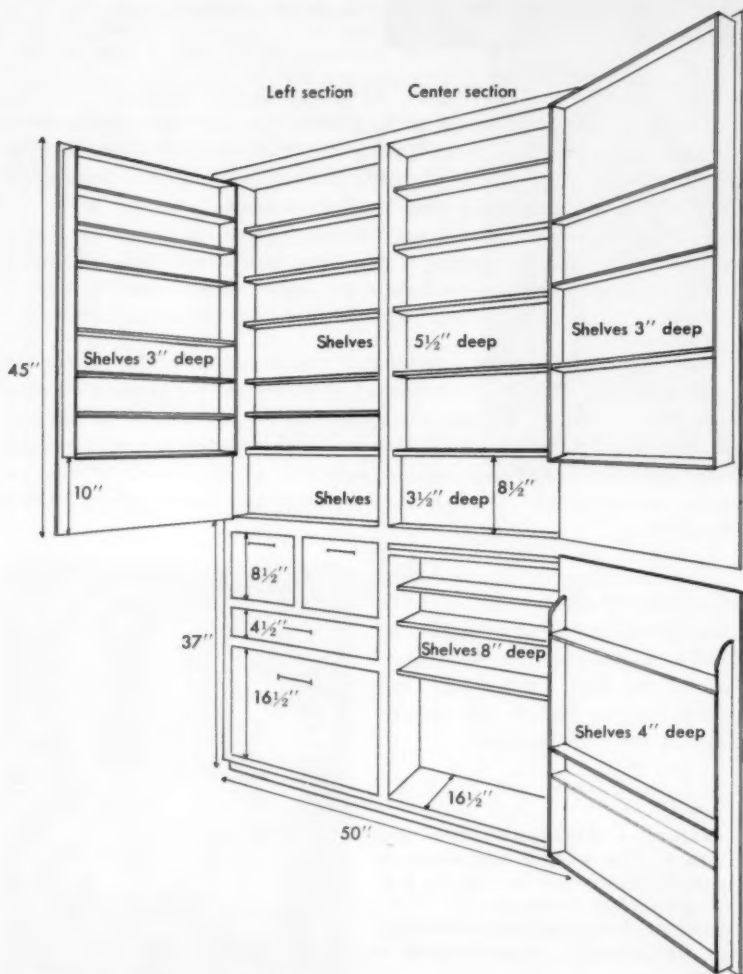




Figure 3. Utensil drawer with vertical dividers 6 inches high to separate baking utensils. The dividers were tested two ways—parallel to the front of the drawer and at right angles to the front. Either way is satisfactory. Dividers that are too high make it difficult to grasp the utensils. Dividers just half the length of the longest utensil will hold all utensils upright.

Frequently-used mix utensils such as measuring cups and mixing spoons are on shelves where they are easy to see and reach. Such shelf storage makes it easy to get measuring equipment and to reach into flour and sugar drawers. Only the rolling pin and other less frequently-used items are in the narrow drawer below the flour and sugar drawers. In testing the storage wall in the kitchen research laboratory, it was found that when all the measuring equipment was in the narrow drawer, the worker had to close the flour or sugar drawers above to get any measuring utensil that she had forgotten.

When the worker used a counter that was moved up to the storage wall for mixing, it was found that she frequently turned around to reach flour and sugar. Sometimes she accidentally spilled the flour or sugar. So the pull-board was added in the center section to reduce both the turns and the spilling. Then the worker could measure right next to the drawers of flour and sugar, and carry only the needed amount of supplies to the mixing counter (figure 4).

The board is good for measuring ingredients but is neither wide enough nor low enough for mixing. Notice that the board was not placed behind the door. In this way, the board can be pulled out without opening the cupboard door.

Figure 4. Pull-board in center section. The worker can measure ingredients without turning or carrying supplies from the wall. The board can be pulled out more easily for use when it is not behind a door.



The Kitchen-Dining Area Storage

The right section of the storage wall provides space for the china and table items used every day (figure 5). Since these items are used in the kitchen for some meals and in the dining area for others, most of the storage

Figure 5. The kitchen-dining area storage from the kitchen side. This right section of the wall opens to both kitchen and dining areas. The doors swing back against the storage wall so they do not protrude into a passageway or swing across an adjacent counter. Curtain springs across the door shelves keep contents from falling off. The 13-inch vertical dividers between the platters are removable for easy cleaning of the shelf.

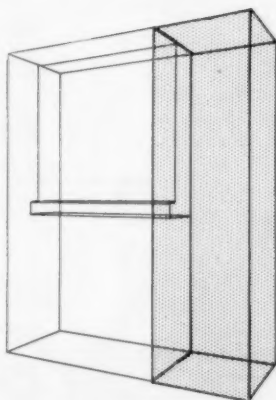
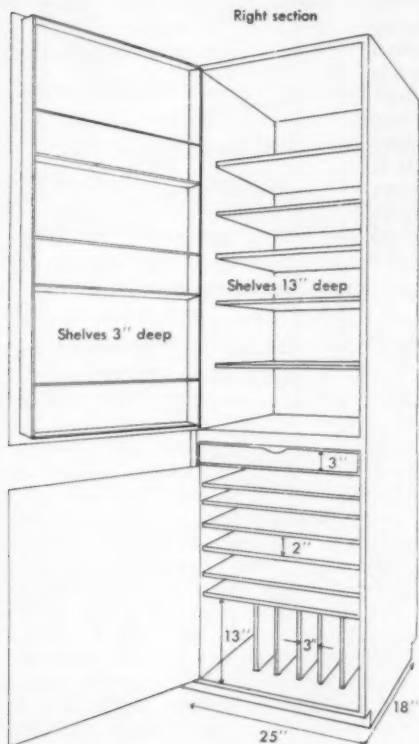
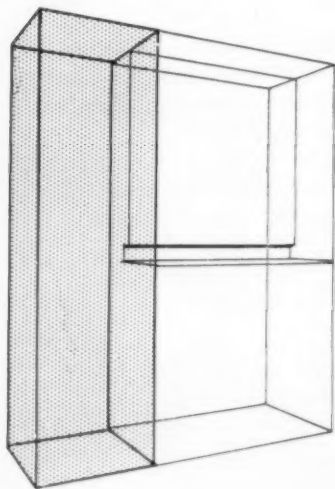




Figure 6. The kitchen-dining area storage from the dining-area side. Storage in this section extends through the entire 18-inch depth of the wall. The drawer for silver and the shelves for linens pull out into either kitchen or dining area. It is better not to put the silver drawer behind a door that would have to be opened before the drawer could be used.



is accessible from both areas (figure 6). Only the storage on the upper door of the kitchen side cannot be reached from the dining area (figure 5). The trays and platters stored on the narrow, adjustable shelves of this door would be customarily used first in the kitchen.

Notice that the doors are hinged so that each swings back against the storage wall. In this way, the doors do not swing out into a passageway, or across a counter if this end of the wall is placed next to another work center.

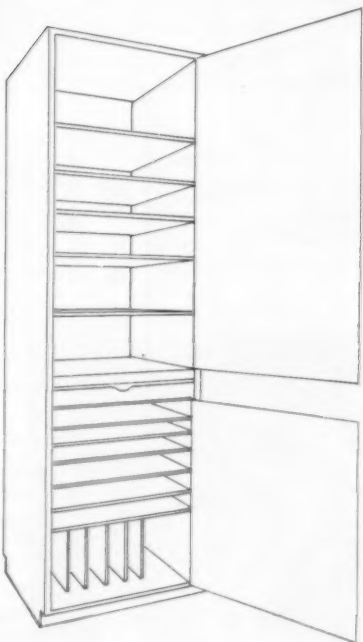




Figure 7. The drawer for the silver in daily use. Vertical dividers, 1½ inches high, are parallel to the front of the drawer. Knives, forks, and spoons are then in a position for easy, safe grasping from either side of the wall.

The heavy stacks of dinner plates, soup bowls, and the like, are placed on the lower, adjustable shelves inside the wall. Heavy stacks of china are easier to lift when they are at or near elbow height. Lightweight items, such as glasses, are placed on the higher shelves.

A drawer for silver in daily use is just below the shelves. This drawer pulls out on either side of the wall (figure 7). The horizontal pull-trays below the silver drawer can be used for tablecloths or place mats. These pull-trays also may be used from either the kitchen or from the dining area.

The Dining-Area Storage

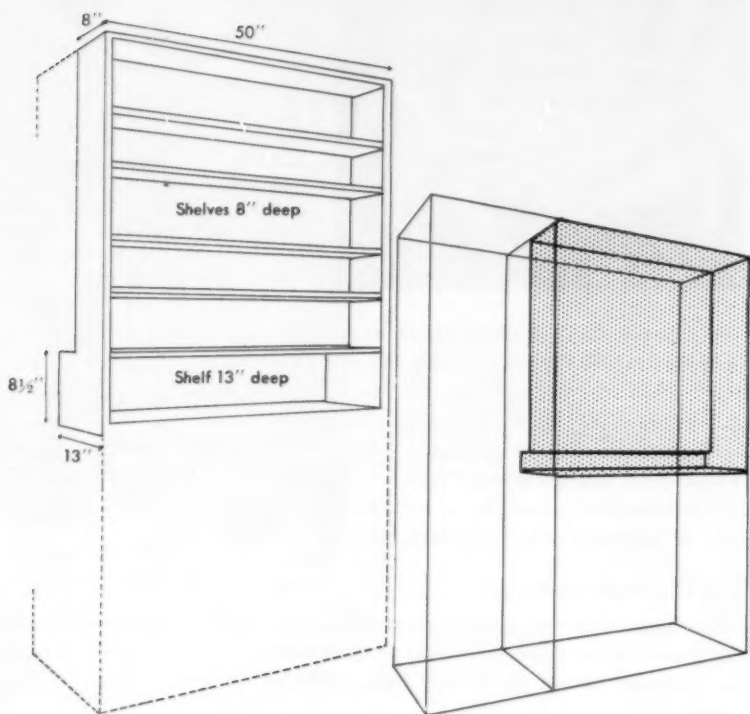
The center and right upper sections of the wall on the dining-area side provide space for an occasionally-used set of china and glassware. There is room for a dinner service of 12 with some additional pieces for group service (figure 8).

The upper shelves are adjustable and just deep enough for two rows of glassware or cups. The bottom shelf is deeper, to accommodate the serving bowls and heavier, single stacks of plates at counter or elbow level.

A cart may help to reduce carrying when you are setting the table or putting away clean dishes (figure 9).

Figure 8. The dining-area storage. The upper center and right sections of this side of the wall are used for storage shelves for the occasionally-used china and glassware. The bottom shelf must be deeper than the other shelves to provide space for the bowls and larger, heavier stacks of plates. If doors are desired over this part of the wall, the depth of the storage wall must be increased to provide the necessary space. The lower center and right sections are used for storage on the kitchen side (figure 2).





The Storage Wall in Use: Advantages and Disadvantages

The storage wall was tested in the kitchen research laboratory in a number of kitchen arrangements. Some advantages and disadvantages became apparent from these tests. Thoughtful consideration of the points that follow may help you decide if a kitchen-dining area storage wall would be of value in your particular situation.

Door Swings

Since the left and center sections of the wall on the kitchen side (figure 2) are used as a unit, it is desirable

Figure 9. A cart cuts down on the number of trips required to take out or put away the occasionally-used set of china and glassware. Since lightweight glasses are not as hard to lift to or from high shelves, heavy plates are stored at about elbow height to help reduce strain from lifting.



to have the two doors swing open away from each other. When the door for the left section is opened, it extends beyond the end of the storage wall. If this door swings out into a passageway, it may become a safety hazard; or if it swings over an adjacent counter, it is inconvenient. Some of the things on the counter must be moved aside or they will be pushed off.

This problem of the left door swinging out beyond the end of the storage wall is not solved by changing the direction of the door swing. This placement would make it difficult to use the left and center sections of the wall as a unit. It would also cause the projecting door handle on the center section to pull loose the screws in the left-door hinges.

When you plan a storage wall for your kitchen, you can avoid these difficulties by allowing two feet of wall space, without counter or equipment, beyond the left end of the storage wall. The extra two feet of wall space could be used for dining- or living-area storage, for a cleaning closet, or for the storage of wraps.

When the door for the right section of the storage wall swings back against the wall, as in figure 5, similar problems of safety hazards and inconvenience are avoided.

Storage Space

The compact, functional storage space provided by this wall seems adequate, if not ample, for a week's supply of packaged, canned, and bottled foods for an urban family of four with a medium income (figure 2). Additional space for perishable foods such as potatoes and onions, and foods requiring refrigeration, would need to be provided. Space is not planned for a reserve supply of foods.

This concentration of supplies in one area permits you to see all your supplies when you open three doors and two drawers. You will notice that the supplies are together and not at the place of first-use in this instance. It is necessary, therefore, to go to the storage unit and then to the place of use, and sometimes back to the storage unit. Whether or not this arrangement is a serious disadvantage depends on the importance you place on reducing carrying and walking.

The storage wall also provides space for utensils used for mixing and for baking. These utensils would need to be carried to the place of use just as the supplies would.

Since the kitchen storage space required in addition to the storage wall is small, overhead cabinets would probably not be necessary and an open type of kitchen could be planned if desired. The side or sides of the kitchen layout other than the storage-wall side would not have to provide storage above counter height. Thus large areas of glass could be used in the kitchen walls if more light were desired. Or the kitchen work area could be a part of a room containing other activity areas if the homemaker likes to have her

family with her. If the work area is a part of another room, one side of the layout need be no higher than the sink or the range. This would not obstruct the vision of those in the room, and they could see and enjoy one another's company.

China and table items, too, are stored in the wall (figures 5 and 6). Some families may have a larger supply so provisions would need to be made for additional storage elsewhere.

Work Surface

No stationary work surface or counter is provided in the storage wall. Thus the supplies are easier to reach, especially those that are placed high (figure 10), and lower storage is not so deep as when a conventional 24-inch-deep counter is provided. However, trips to and from the storage wall and work surfaces are necessary for mixing operations or for loading and unloading china. Walking and carrying can be kept to a minimum if a counter is nearby, or if a work surface may be moved near the wall. A cart could be used to take a number of items at one time.

Auxiliary work surfaces to use with the storage wall were tested in two locations, at a right angle to the end of the wall and in front of the wall. Both

locations were satisfactory to the laboratory workers, but the work surface in front of the wall required them to turn further. This location for the work surface would be a disadvantage to you if turning bothers you. The work surface in front of the wall also acted as a barrier between the worker and the sink, range, or refrigerator.

The work surfaces tested were of two shapes, rectangular and semi-circular (figures 11 and 12). The amount of space in your kitchen would determine whether you could accommodate either, but the semicircular work surface would require more space. Our laboratory workers liked the semicircular work surface because



Figure 10. Highest shelves should be placed within the worker's easy reach. No need to stand on tip-toe and stretch to reach these supplies. Without a counter to reach across, it is possible to reach higher.

Figure 11. Rectangular work surface is tested at a right angle to the wall. The work surface is placed two feet beyond the end of the storage wall to allow the upper door to be opened without swinging across the work surface.



Figure 12. Semicircular work surface is tested in front of the wall. Enough space must be allowed between the wall and the work surface for the doors to swing open and for the worker to walk around the end of the work surface. This shape of surface requires more space than a rectangular one, but is easier to work at because it fits the pattern of arm movements.

it fitted their motions better than the rectangular shape and provided ample room even for making and cooling rolled cookies.

The pull-board described on page 8 helps to reduce moving of supplies. Another pull-board could be built into the right section of the wall just above the drawer for silver when there is no nearby counter. Then there would be a place to hold a tray or dish drainer to load or unload china and glassware. The drawer for silver could not be opened on the kitchen side when the pull-board was in use.

The Storage Wall in Kitchen Arrangements

TO DEVELOP guides for placing the storage wall, kitchens were set up in the research laboratory and were tested with the storage wall as one side of the arrangement. The results of this testing may guide you as you work out a convenient arrangement with the storage wall:

1. The passageway to the dining area may be at either end of the storage wall. However, when the passageway is between the left end of the wall and the work surface for mixing, other people using the passageway may interfere with you as you walk between storage and work surface.


2. A work surface for mixing operations near the left end of the storage wall or in front of it will mean that you will not need to carry supplies far.
3. A work surface near the right end of the storage wall or a pull-board in the right section will make it easier to use the china storage on the kitchen side.
4. A cart (see page 12) will help to cancel out difficulties if work surfaces cannot be near both ends of the storage wall.

A good kitchen arrangement helps to eliminate unnecessary walking and other wasted effort and helps you to work automatically. The kitchen may also become less cluttered because you can easily keep things picked up. In planning most kitchens, two general principles can be used to obtain a good arrangement. One principle of arrangement is to store each item at the center where it will be used first. The second principle is to place close together the centers between which frequent trips are made.

In some cases, both principles may be followed. With a storage wall, the first principle cannot be applied since most items are stored at one place—in the storage wall rather than at separate centers. In planning a kitchen with the storage wall, therefore, give special attention to the second principle.

Consider how many trips you make between work and storage places to determine a functional location for the sink, range, and refrigerator in relation to the storage wall. When you make numerous trips between two places, the walking distance will be less if they are near each other. In testing kitchen arrangements with the storage wall, many trips were made between the sink and range, between the sink and china storage in the wall, and between the mix storage in the wall and counter space. Trips away from the sink, range, and refrigerator to counter space were avoided. Enough counter space was provided at the range and refrigerator for serving food, and at the sink for holding china and cooking utensils before and after washing.

Suggestions are made, then, to assist you in planning an arrangement of equipment with the storage wall to keep walking distances low and to permit an easy pattern of work:

1. Consider counter space beside the sink, range, and refrigerator as essential. Provide counter space on both sides of the sink, beside the range, and beside the door-latch side of the refrigerator. Such planning for counters with equipment makes it unnecessary to walk away from the equipment when work or stack space is needed.
2. Place one piece of equipment at a right angle () to another piece or to the storage wall to shorten the distance between them. Such a location is especially good when there are many trips between places, for distances add up quickly.
3. Place the sink and the range on the same wall or on adjacent walls. Walking distance for the trips is longer when the sink and the range are

on opposite walls. Don't forget to put counter space between the sink and the range.

4. Place the sink near the china section of the storage wall to make it easy to store clean china from the sink counter.
5. Place the refrigerator near the counter you use for mixing, near the sink, or near the range, as seems to fit your work habits for the meals you prepare and serve.

The way you use these suggestions for the arrangement of your kitchen with the storage wall will depend upon the size of your kitchen, the type of kitchen you want, and the location of other rooms in the house.

The storage wall seems to have possibilities for use in either conventional or open-plan houses. With the storage wall, you can plan a compact kitchen arrangement with no space allowance for other activities in the kitchen. Or you can plan to have space for eating, or for recreation, or for family activities. The storage wall could be used in houses that are being remodeled, in new houses, or in new apartments.

A Few Adaptations

SOME suggestions for adaptations may give you ideas for ways to develop a storage wall that will fit you and your situation:

1. Remove the door on the right section of the wall on the kitchen side (figure 5). If you prefer to have no door over your everyday china, to make it possible to reach china without first opening a door, there is extra storage space in the lower section for the platters and trays that are shown on the door.
2. Hang small mix utensils on hooks instead of placing them on shelves (figure 2). You may find it easier to grasp and store measuring cups and spoons on hooks rather than on shelves, even though our workers preferred shelf storage.
3. Store an electric mixer on the deepest shelf of the upper center section (figure 2). To make room, it would be necessary to raise the first inside movable shelf and to remove some of the door shelves. This location for storage of an electric mixer does mean lifting and carrying it to and from a work surface, and reduces the storage space for supplies.
4. Add a fourth section to the wall for storage of cleaning equipment or extra supplies.
5. Do not build the right section of the storage wall if you already have storage space for china and table items.
6. Build the storage wall so the location of the two end sections is reversed. Thus, the china-dining area section now on the right end would be on the left end. (This design has not been tested, but is considered workable.)

Conclusions

As you consider a storage wall for yourself, appropriate changes will occur to you. Working drawings are not available because we do not expect that any family would want to copy this wall exactly. Enough measurements are given in the figures to provide you with basic information on the proportions and approximate dimensions we used. When you build a storage wall, you will need to know the thickness of the construction material that you are using and allow for the framing so that the inside dimensions will be adequate for the items to be stored.

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